

# NASA TECH BRIEF



This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the space program.

## Vented Piston Seal Prevents Fluid Leakage Between Two Chambers

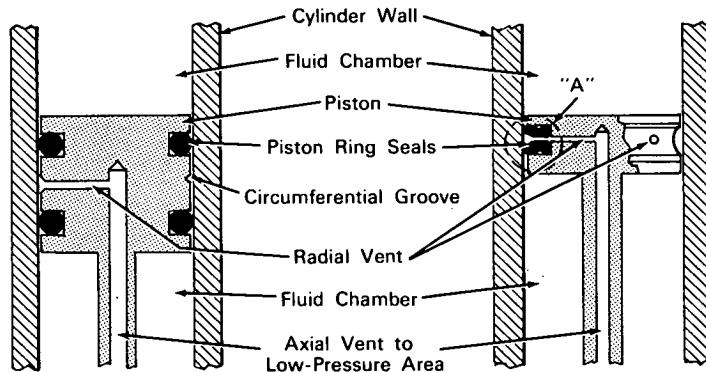
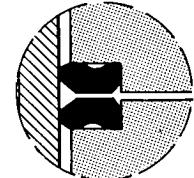


FIGURE 1

FIGURE 2



"A" PISTON RING DETAIL

**The problem:** Prevention of fluid leakage around piston seals separating two fluids under pressure differentials of up to 100 psi.

**The solution:** A venting system is provided between two annular sealing surfaces on the piston separating one fluid from another under different pressure.

**How it's done:** Two design variations are shown in cross section.

In one design (Figure 1), two conventional O-ring seals are recessed into the surface of the piston. Between the O-rings is an external annular groove which has a number of small radial vent holes leading to an axial vent. Fluid leaking past either of the O-ring

seals will flow through the internal passages to the atmosphere or other external low-pressure area.

In the alternative design (Figure 2), the piston is thinner because a single split-ring seal is recessed in the surface of the piston. As in the first design, leakage of fluid around the seal will be vented through the internal passages to an external low-pressure area.

### Notes:

1. The vented piston seal may be used on compressors, piston pumps, and valves to prevent contamination of a fluid in one chamber with a fluid in a second chamber.

(continued overleaf)

2. Inquiries concerning this innovation may be directed to:

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Reference: B63-10141

**Patent status:** NASA encourages commercial use of this innovation. No patent action is contemplated.

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